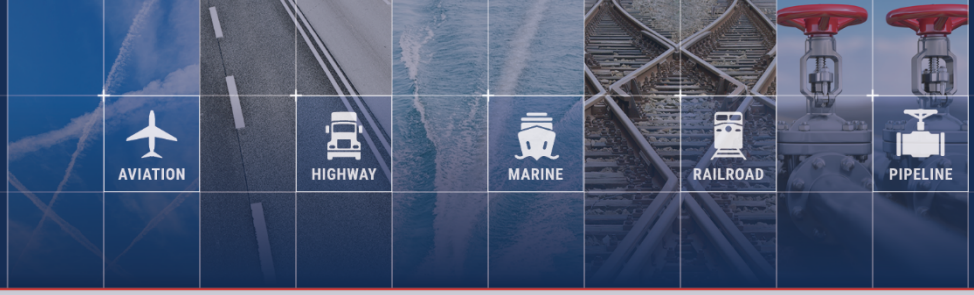

Aviation Investigation Final Report

Location:	Colton, Oregon	**Accident Number:**	ANC21LA007
Date & Time:	November 16, 2020, 06:04 Local	**Registration:**	N18666
Aircraft:	Cessna 150L	**Aircraft Damage:**	Destroyed
Defining Event:	Collision with terr/obj (non-CFIT)	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The instrument-rated pilot departed on an instrument flight rules (IFR) cross-country flight in dark night conditions. While enroute, the pilot cancelled his IFR clearance and reported to the air traffic controller that he was proceeding to another airport. Shortly thereafter, the pilot requested an IFR clearance to the original destination airport, then corrected himself and asked for an IFR clearance to the second airport. Shortly thereafter, the pilot declared an emergency and reported pitot system icing. The controller asked if the pilot could climb and maintain terrain clearance. The pilot replied that he thought he was climbing and asked the controller to verify the airplane's altitude. However, recorded data showed the airplane in a rapidly steepening descending left turn in the vicinity of the accident site. The wreckage was located the following morning; however, due to the remote location of the site, it was not recovered or examined.

The pilot reported loss of the pitot system due to icing which would have affected the accuracy and response of the airspeed indicator. However, the airplane was flying at altitudes below those forecast to support structural icing. The pilot's subsequent request to ATC to verify his altitude and statement that he thought he was climbing while data showed the airplane was descending reflects confusion. Several minutes before the pilot's declaration of emergency the airplane's track was inconsistent with a direct route or the intended route to the destination airport, showing a series of left and right turns with reversing track changes of about 90 degrees. The distance over which these turns occurred is inconsistent with avoidance of precipitation depicted on a portable display or deviating around clouds to maintain VFR which would have been impossible to do so under dark night conditions over an area of sparse cultural lighting.

The track changes prior to the declaration of emergency, the pilot's reported confusion about the airplane's vertical trajectory, and resultant loss of control in a descending turn are consistent with the known effects of spatial disorientation. Because the airplane was not recovered there is insufficient evidence whether this was due to a breakdown in the pilot's scan

under the forecasted turbulent conditions or whether failure of vacuum instruments providing attitude and directional information was involved.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain positive control of the airplane in mountainous terrain during dark night conditions as a result of spatial disorientation which led to a loss of control and subsequent impact with terrain.

Findings

Aircraft	(general) - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Enroute	Collision with terr/obj (non-CFIT) (Defining event)

On November 16, 2020, about 0604 Pacific standard time, a Cessna 150L, N18666, was destroyed when it was involved in an accident near Colton, Oregon. The pilot and one passenger were fatally injured. The airplane was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

According to Federal Aviation Administration (FAA) air traffic control recordings and Automatic dependent surveillance-broadcast (ADS-B) track data, the pilot departed McNary Field Airport (SLE), Salem, Oregon, about 0515, on an instrument flight rules (IFR) flight plan with a destination of Portland-Troutdale (TTD) Airport, Portland, Oregon. Shortly after departure, the pilot cancelled his IFR flight plan and stated that he was bypassing TTD and proceeding to Eastern Oregon Regional Airport at Pendleton (PDT), Pendleton, Oregon. The controller advised the pilot of precipitation depicted northwest of Mount Hood and stated that the pilot could obtain an IFR flight plan if needed.

About 10 minutes later, the pilot requested visual flight rules (VFR) flight following to Baker City Municipal Airport (BKE), Baker City, Oregon. The pilot stated that he intended to fly north of Mount Hood along the Columbia River Gorge. The controller reported light to moderate precipitation northwest of Mount Hood, but stated that the area south of Mount Hood appeared to be clear. The pilot acknowledged and stated that he would stay south of Mount Hood if he could remain clear of terrain. The controller instructed the pilot to resume his own navigation and advised that he could activate an IFR clearance if needed, but the pilot declined. ADS-B data subsequently show that the airplane tracked largely to the southeast before making a series of left and right turns on a modal track to the south-southwest.

About 0600, with ADS-B data showing the airplane between 6800-6900 ft mean sea level (msl) and tracking to the southwest, the pilot contacted the controller and requested an IFR clearance to SLE. When asked by the controller to confirm the destination, the pilot requested an IFR clearance to BKE and when confirming equipment on board the aircraft stated he had VOR, GPS, and ADS-B in. Shortly thereafter, the pilot declared an emergency and reported pitot system icing. The controller asked if the pilot was able to climb and the pilot responded that he thought he was climbing. About one minute later, the pilot asked the controller to verify the airplane's altitude. There were no further transmissions from the accident airplane.

The airplane momentarily flew to the northeast, then appeared to enter a descending left turn, shortly after which radar and radio contact was lost. The final minute of ADS-B data recorded by the FAA showed that the airplane lost about 800 feet of altitude in about 37 seconds followed by the loss of another 1000 of altitude in the remaining period before received data

stopped at 4900 ft msl. According to coordinates provided by first responders the elevation at the accident site was about 2500 ft msl.

PERSONNEL INFORMATION

The pilot reported on his most recent airman certificate application, dated October 9, 2020, a total of 238.1 hours of flight experience. The pilot's personal logbooks were not available for review.

AIRCRAFT INFORMATION

The airplane's maintenance logbooks were not recovered.

METEOROLOGICAL INFORMATION

FAA contract Flight Service Station (FSS) provider Leidos did not provide the pilot any preflight weather briefings, but were contacted at 0506 when the pilot activated his IFR clearance. At that time, the pilot was advised of several AIRMET advisories current for the route of flight for IFR, mountain obscuration, icing, turbulence, and low-level wind shear, and was advised that the current radar depicted several scattered moderate rain showers across the region.

The pilot filed his IFR flight plan through ForeFlight at 0502 for an estimated departure time of 0510. The pilot also viewed weather imagery through the ForeFlight app, which included the forecast charts from the current conditions and the 12/24-hour Low-Level Significant Weather Prognostic Chart.

At the time of the accident, the sun was 11° below the horizon at an azimuth of 105°, and official nighttime prevailed. The moon was 28° below the horizon at an azimuth of 94°, and the phase was a waxing crescent with 3% of the moon's disk illuminated.

The closest weather reporting facility to the accident site was Aurora State Airport (UAO), Aurora, Oregon, about 29 miles west of the accident site an elevation of 200 ft msl. About the time of the accident, the recorded observation included wind from 360° at 6 knots, 10 miles or more visibility, ceiling broken at 5,500 ft above ground level (agl), overcast at 8,000 ft agl, temperature 8°C, dew point 7°C, and an altimeter setting of 30.02 inches of mercury.

A base reflectivity image depicted very light intensity echoes over the flight path and supported light precipitation and clouds at the airplane's cruise altitude. The freezing level in the area varied from 7,172 ft to 9,272 ft msl; however, in both soundings, the freezing level was above the airplane's cruise altitude.

WRECKAGE AND IMPACT INFORMATION

The highly fragmented wreckage was located by search crews on November 17 in an area of steep, heavily wooded, mountainous terrain that had been burned by recent wildfires. The wreckage was not recovered due to its remote location.

Pilot Information

Certificate:	Commercial	**Age:**	19,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	December 14, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 9, 2020
Flight Time:	(Estimated) 238.1 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N18666
Model/Series:	150L	**Aircraft Category:**	Airplane
Year of Manufacture:	1972	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	15074027
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental Motors
ELT:		**Engine Model/Series:**	O-200 SERIES
Registered Owner:	Capitol Home Investments Inc	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	KUAO,196 ft msl	**Distance from Accident Site:**	29 Nautical Miles
Observation Time:	05:53 Local	**Direction from Accident Site:**	295°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Broken / 5500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	Clear air / Unknown
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	Moderate / N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	8°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Salem, OR (KSLE)	**Type of Flight Plan Filed:**	IFR
Destination:	Portland-Troutdale, OR (KTTD)	**Type of Clearance:**	IFR
Departure Time:	05:15 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:		**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	45.05,-122.156(est)

Administrative Information

Investigator In Charge (IIC):	Swenson, Eric
Additional Participating Persons:	James Holden; Federal Aviation Administration; Portland, OR Andrew Hall; Textron Aviation; Wichita, KS
Original Publish Date:	September 14, 2022
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=102299

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.